REMARKS

Further to the undersigned's telephone call of November 24, 2008, Applicant hereby requests a personal interview.

Claims 3-5, 8-16, and 23-29 are all the claims presently pending in the application. New claims 28 and 29 have been added to raise a new issue to prevent a first action final rejection. No new matter has been added.

Applicant acknowledges and appreciates that claims 11-16 and 23-27 are allowed. For the reasons set forth below, however, Applicant respectfully submits that all of the pending claims are allowable over the prior art of record.

New claim 28 recites a demultiplexing method of receiving a multiplexed signal. The multiplexed signal is obtained by multiplexing a plurality of communication signals from a multiplexed signal transmitting section, demultiplexing the multiplexed signal into communication signals, and transmitting the demultiplexed communication signals to a communication signal receiving section. The method of receiving a multiplexed signal includes adding an identification address to each of the plurality of communication signals. The identification address is preassigned to a predetermined signal identifying section, through which a communication signal passes in a multiplexing system including the multiplexed signal transmitting section and the communication signal receiving section. The method of receiving a multiplexed signal also includes outputting each of the communication signals, extracting the identification address from each of the output signals, and demultiplexing the multiplexed signal for each of the communication signals on the basis of the extracted identification address. The communication signal is a PPP packet in an Ethernet frame packet or an IEEE 802.3 frame packet.

Additionally, new dependent claim 29 recites, among other things, converting the demultiplexed signal into a digital subscriber line (DSL) signal and transmitting the DSL signal to a corresponding subscriber apparatus.

Conventionally, in the Internet, prior to data communication upon forming a communication path between two terminals connected to the Internet, the terminals must be connected to a backbone network through an access network. For this connection, the Point-to-Point Protocol (PPP) is used.

In the conventional networks, an apparatus which discriminates each subscriber who tries to access the Internet and has a function for Asynchronous Transfer Mode (ATM) processing must be installed at an entrance to the backbone network. Such an apparatus must be added every time the number of subscribers increases. In addition, the PPP termination apparatus is often installed near the backbone network to which packets from many subscribers are sent upon multiplexing.

As the number of subscribers who access the Internet increases, an apparatus for performing Point-to-Point Protocol (PPP) processing connection of the subscribers to the backbone network of the Internet must be added. Such an apparatus may be installed in a place as near to the subscribers as possible to avoid complication of the PPP, complication of the system, and complication of a management system for the system. *See* the Application, Page 6, Line 7 to Page 7, Line 4.

The present invention, however, provides, "an identification address, for each of the communication signals, which is added to each of the communication signals in the multiplexed signal received from the multiplex communication path and preassigned to a predetermined signal identifying section through which a communication signal passes in a demultiplexing section including said multiplexed signal transmitting section and said

communication signal receiving section," as recited in claim 1.These features provide a simpler arrangement for PPP processing.

The present invention, therefore, provides a multiplexing method and apparatus, demultiplexing method and apparatus, access network system, subscriber multiplexing/demultiplexing apparatus, and protocol termination apparatus which can multiplex PPP packets on the basis of media access control (MAC) addresses and the like, demultiplex the packets on the basis of MAC or IP addresses, and simplifies an arrangement for PPP processing by using these multiplexing and demultiplexing processes. *See* the Application, Page 7, Line 17 to Page 8, Line 5.

Gelman, on the other hand, is directed to a network in which all the nodes therein communicate via the same protocol, each node having an IP address. Information is transmitted conventionally, via a packet with an address header and a payload. However, Gelman does not disclose or suggest "demultiplexing the multiplexed signal for each of the communication signals on the basis of the extracted identification address," as recited, for example, in claim 3. That is, Gelman discloses only a conventional internetwork communication arrangement and does not even disclose overcoming the conventional difficulties of providing a PPP performing apparatus near the Internet subscriber.

Johnson, on the other hand, is directed to a multiplex communication system to communicate with customers. Johnson discloses that switch router 30 separates packets out of a PPP stream when it detects packets that are intended for the server. That is, in Johnson, a router is required to search each packet to determine if the packet is intended for the server of customer.

Therefore, Johnson provides no teaching of "extracting an IP address from each packet in the received multiplexed signal for each of the plurality of packets, the IP address being preassigned to a predetermined signal identifying section through which a

communication signal passes," as recited in claim 5 because the PPP addresses because "these routing decisions are made using addressing information (e.g., IP addresses) embedded in the packet headers." *See* Johnson, Col. 8, Lines 37 to 40.

Therefore, neither Gelman nor Johnson disclose or suggest every feature recited in the claimed invention.

In view of the foregoing, Applicant submits that claims 3-5, 8-16, and 23-29, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 11/24/8

Joseph Peter Hrutka, Esq.
Registration No. 53,918

Sean M. McGinn, Esq.
Registration No. 34,386

MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, Virginia 22182-3817
(703) 761-4100
Customer No. 21254